

Notice of Allowability

Application No.

10/699,047

Examiner

Khanh B. Duong

Applicant(s)

KIM, JI-YOUNG

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed December 11, 2006.
2. ☒ The allowed claim(s) is/are 8-15 and 17-26.
3. ☒ The drawings filed on 30 October 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Response to Amendment

This office action is in response to the amendment filed December 11, 2006.

Accordingly, claims 8, 20 and 25 were amended. Claims 1-7 and 16 were previously canceled.

Currently, claims 8-15 and 17-26 remain pending.

Response to Arguments

Applicant's arguments, see REMARKS, pages 6-9, filed in the amendment, with respect to the rejections of claims 8-15 and 17-26 under Weis, Tabata and Ishikawa have been fully considered and are persuasive. The rejections thereof have been withdrawn.

Allowable Subject Matter

Claims 8-15 and 17-26 are allowed.

The following is an examiner's statement of reasons for allowance: none of the prior art of record fairly shows or suggests all the process limitations as claimed.

Re claim 8, none of the prior art of record discloses the following limitations in combination with the rest of the limitations in the claim: *forming a gate electrode having a first portion which rises over the semiconductor substrate and a second portion filling the trench by successively patterning the capping layer and the gate conductive layer, wherein the first portion has a smaller width than that of the second portion.*

Re claim 20, none of the prior art of record discloses the following limitations in combination with the rest of the limitations in the claim: *forming a gate electrode having a first portion which rises over the semiconductor substrate and a second portion filling the trench by*

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successively patterning the capping layer and the gate conductive layer, wherein the first portion has a smaller width than that of the second portion.

Re claim 25, none of the prior art of record discloses the following limitations in combination with the rest of the limitations in the claim: *forming a gate electrode having a first portion which rises over the semiconductor substrate and a second portion filling the trench by successively patterning the capping layer and the gate conductive layer, wherein the first portion has a smaller width than that of the second portion, and wherein forming the gate electrode comprises recessing the gate conductive layer that fills the trench to a depth of 500 Angstroms or less from the surface of the semiconductor substrate.*

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh B. Duong whose telephone number is (571) 272-1836. The examiner can normally be reached on Monday to Friday from 8:00 AM to 5:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on (571) 272-2429. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



KBD



Zandra V. Smith
Supervisory Patent Examiner
20 Feb 2007